LESSON 3: RISK FACTORS FOR DENTAL DECAY

Purpose: To gain a basic understanding of factors that impact the development of dental decay in early childhood.

Overview: In this lesson, the trainee explores the risk factors and risk behaviors associated with dental decay.

Goals: The trainee will be able to describe the following:

- The distinction between amount of sugars consumed and frequency of sugar consumption
- Feeding behaviors that influence the development of decay
- The connection between the oral health status of caregivers and development of dental decay in infants
- Feeding behavior changes to prevent dental decay in early childhood.

Activities: Assessing susceptibility for dental decay in infants and children. The trainer presents one or more of the following case studies with different levels of risk factors for discussion. If a group activity, groups should report their findings to the entire class.

1. The babysitter of a 7-month old refuses to give baby a cup because it's too messy. Anyway, none of the other babies are using cups yet!
2. The mother of a 14-month old tries to wean her baby from the bottle but he cries so hard at bedtime that she finally gives in. What should she do?
3. The mother of a 22-month old says that her baby won't let her brush his teeth. He throws a tantrum.

Possible Solutions:

1. It will probably be up to the father or mother to educate the babysitter about dental disease in early childhood. Babysitters aren't always easy to come by so the parents may want to proceed with caution! Some parents will, however, be prepared to be firm with the babysitter and insist that their baby use a cup. There are many approaches to handling this case.
2. Unfortunately, by giving in, this mother made her job harder. This baby learned that if he cries hard enough, Mom would give him back his bottle. The next time Mom tries to wean him, he will probably cry even harder and persist even longer. Stress to the mother that

she needs to be strong. She should go to her baby every 10 minutes or so and comfort him but she should not, under any circumstances, give him the bottle. Parents need to understand that the crying will only last three or four nights. If this parent still delays weaning, you should tell her that it can get harder as her son gets older.

3. It *is* more difficult to start this habit with a toddler. In fact, it's common and normal for a toddler to be fussy and difficult in many situations, such as diaper changing or face washing. This mother may have to let her son brush by himself for a few days and then slowly intervene to do some of the brushing herself. She can make a game of brushing or start a chart and offer stickers for each day of good brushing. There are many other good solutions for this problem.

Key Terms:

Fissure
Pit

RISK FACTORS FOR DENTAL DECAY

❖ **<u>What population groups are at risk for dental disease in early childhood</u>?**

- A 1997 national study revealed that 32 percent of Mexican American, 22 percent of African American, and 13 percent of white children, age 2 to 4, had dental decay in their primary teeth.
- A report from the National Institute of Dental and Craniofacial Research indicates Latinos, American Indians and Alaska Natives are also at especially high risk for developing early childhood caries. In fact, "Baby Bottle Tooth Decay" prevalence as high as 80 percent has been reported in several Native American populations.
- Surveys conducted in Hartford, New London and Torrington Connecticut, suggest that the prevalence of early childhood dental decay may be as high as 25 percent, and risk behaviors for early childhood dental decay among parents and caregivers may be as high as 65 percent in these populations.

❖ **<u>Are there developmental risks for dental disease</u>?**

Variations in the development of the tooth are common and can be extreme in certain conditions:

- Tooth enamel and other hard structures may form abnormally, resulting in white spots, brown spots, rough ridges, pitting or other deformities, or teeth may not develop at all.
- Deep **pits** and **fissures** in the chewing surfaces of teeth create anatomically susceptible areas for bacteria and plaque.
- Children who have been born prematurely or at lower than normal birth weight are also at higher risk for developing dental decay.
- Many developmental and acquired medical problems, and their treatment, can increase the risk of developing serious dental decay. These may include: special carbohydrate diets, frequent intake of sugared medications, reduced saliva flow from medication or irradiation, special health needs, gastric reflux, compromised immune system, physical and behavioral disabilities and disorders.

❖ **Can a caregiver "infect" an infant with *S. mutans*?**

When caregivers have a lot of teeth with untreated dental decay, they have substantially higher amounts of *S. mutans* in their mouths. These bacteria are transmitted to children through contact such as allowing babies to put their fingers in caregivers' mouths and then putting their fingers in their own mouth; sharing food, kissing, testing the temperature of a bottle with the mouth, and "cleaning" a pacifier that has fallen by sucking on it before giving it back to the infant. Even if children are already infected with *S. mutans,* caregiver transmission can increase the concentration of the bacteria, resulting in more severe dental disease. It is important for the oral health of the child, therefore, that the caregiver have good oral hygiene.

❖ **How else might a caregiver's behavior influence a child's risk for dental decay?**

- A child's overall development and health risk behaviors are influenced by a wide variety of conditions and circumstances in their home and community. Some parents and caregivers see the bottle as a good way to keep a child quiet and occupied during periods of stress or duress; the bottle may serve as an immediate solution to the baby's crying.
- The caregiver who is confronted by serious daily life stresses may not be able to consider caring for the teeth as a high priority. The child may be less likely to be taken for a visit to the dentist and may not be encouraged to practice good oral hygiene habits. The child may be more likely to engage in risk behaviors for oral diseases and conditions such as eating a disproportionate amount of foods high in carbohydrates, smoking at an early age, or engaging in sports and recreational activities without needed head, face and mouth protection.
- The belief that it is cruel to deny a child a bottle or snacks whenever he or she wants it also contributes to risky feeding behaviors.

❖ **Is it simply "what you eat" or "how you eat it" that influences dental decay?**

- Large amounts of sticky, sugary food and drink are not good for the body, nutrition wise, but it is the **frequency** of eating or drinking that is even more of a risk for dental disease. For example, consuming sugar-containing food for 20 seconds creates an environment for bacterial acid production of about 20 minutes. Even a very small amount of sugary drinks or foods consumed slowly over the course of a day will create an acid environment lasting many hours.

- **Snacking** is not necessarily bad. In fact, frequent consumption of small amounts of food may be especially important for the toddler's nutrition, because infants often have small appetites at mealtime due to their stomach's limited capacity.
  - Snacking should be limited to nutritionally rich foods that are low in refined sugar.
  - The child should snack at regular intervals between meals, not *ad lib* throughout the day and not too close to mealtime. This method is better for the child developmentally and nutritionally and is better for the teeth, as well.
  - Frequent snacking throughout the day creates a constant environment ideal for the development of bacteria and the acids that eat away the tooth enamel and cause decay. If frequent food consumption is necessary for the child's nutrition, be certain that the child's teeth are brushed with fluoride toothpaste at regular intervals, three times a day.
- Eating habits begin to develop early and are easily influenced by caregivers. If a caregiver uses food to control a child's behavior such as giving a favorite treat for good behavior, the child learns that foods are rewards.
- Some caregivers will fill a bottle with cereal and make the hole in the nipple larger, so that a child can feed off of the bottle rather than taking the time to feed the child with a spoon. This practice further concentrates pooled carbohydrates around the teeth.
- A practice such as dipping a baby's pacifier in honey, sugar or other sweet substance occurs in some cultures to calm a baby by making them accept the pacifier more readily.

  If a child goes to bed each night or is pacified during the day by sucking on a sweet drink or a high carbohydrate formula, they learn to comfort themselves with sweetened and high carbohydrate foods in later childhood.
- Switch to a "**sippy cup**" or other small cup as soon as possible. A child should be encouraged to start using a cup as soon as he or she can sit up unassisted. Parents should be encouraged to transition their child from bottle to cup by 12 months of age. Similarly, the young child should be transitioned to the cup whenever the mother is ready to discontinue breast-feeding; there does not need to be a bottle-feeding period between the two.

❖ **Does breast vs. bottle make a difference when it comes to dental decay?**

- Breast-feeding, for many reasons, is clearly the preferred method for feeding the infant. Breast-feeding provides many nutritional and developmental advantages. Nevertheless, breast milk does contain (natural, not refined) sugars, and some babies who nurse for long periods throughout the day or night may develop tooth decay. Babies should be removed from the breast when they finish feeding to prevent prolonged pooling of these sugars around the teeth. Breastfeeding is associated with a very low risk of developing dental decay as compared to bottle-feeding. The pediatrician or nutritionist may suggest bottlefeeding or other alternatives to breast-feeding, if medically, nutritionally or developmentally indicated.
- If bottle-feeding, the bottle should be thought of as a means of delivering a meal, and not used as a pacifier. A child should not be allowed to drink from a bottle throughout the day. The parent/caregiver should hold the infant while feeding and then lay them down with a favorite stuffed animal, blanket or something comforting rather than lay them down with a bottle containing milk, formula, juice, Kool-aid, or other sweetened liquid.
- After the feeding, the parent/caregiver should try to give the infant an ounce or two of water, to help reduce the concentration of pooled sugars and to get the baby used to drinking water.

❖ **In summary, what are the factors that put someone at risk for dental decay?**

An individual is at high risk for developing dental decay with:

- Lack of oral disease prevention practices (brushing, flossing, etc.),
- Poor oral hygiene (accumulations of plaque)
- Inadequate fluoridation
- Diets high in carbohydrates (particularly refined sugars) and poor dietary habits (frequent snacking, excessive use of baby bottle)
- A prior history of dental decay in early childhood
- A high level of dental decay in the parent or caregiver.

In addition, individuals with the following characteristics are at higher risk for developing dental decay:

- Racial/ethnic minority
- Low income
- Limited or no dental insurance
- Less than high school education of parents/caregivers
- Special health care needs

Recent research indicates that determination of levels of bacteria in the mouth (*S. mutans*) in infancy may prove to be an excellent predictor for early childhood decay, and may enable early and effective risk management and disease prevention.